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May 6, 2011
(PBW Project No. 1352)

VIA FEDERAL EXPRESS

Mr. Gary Miller
Remedial Project Manager
U.S. Environmental Protection Agency, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Ms. Barbara Nann
Assistant Regional Counsel
U.S. Environmental Protection Agency, Region 6
Superfund Division (6RC-S)
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**RE: FINAL REMEDIAL INVESTIGATION REPORT REPLACEMENT PAGES
GULFCO MARINE MAINTENANCE SUPERFUND SITE
FREEPORT, TEXAS**

Dear Mr. Miller and Ms. Nann:

Please find enclosed four (4) copies (Mr. Miller) and one copy (Ms. Nann) of four replacement pages for the Final Remedial Investigation (RI) Report dated April 6, 2011 for the Gulfco Marine Maintenance Superfund Site (the Site). The report and replacement pages were prepared by Pastor, Behling & Wheeler, LLC (PBW) on behalf of LDL Coastal Limited LP (LDL), Chromalloy American Corporation (Chromalloy), and The Dow Chemical Company (Dow). An electronic copy of the entire report in Adobe® format with the replacement pages inserted is provided on the DVD transmitted to Mr. Miller herewith. In accordance with Paragraph 52 of the amended Unilateral Administrative Order for the Site, effective January 31, 2008 (the amended UAO), I certify that I have been fully authorized by these Respondents to submit this report and to legally bind these Respondents thereto. As you know, Parker Drilling Offshore Corporation is participating in the Site work, as well, under an agreement it reached with the Respondents.

The replacement pages have been prepared to address a modification requested in an April 21, 2011 letter from Mr. Miller approving the Final RI. Although the requested modification referred only to Page 2 of the report, similar wording was included on report Pages 71 and 102, so replacements for those pages are also enclosed, as is a replacement for Page 92, where a typographical error (reference to Table 38 instead of Table 33 in the third to last line)

Mr. Miller and Ms. Nann
May 6, 2011
Page 2

was subsequently identified. Please insert these replacement pages into your copy of the Final RI Report and discard the previous version of those pages.

Should you have any questions, please do not hesitate to contact me at any time.

Sincerely,

PASTOR, BEHLING & WHEELER, LLC

A handwritten signature in black ink, appearing to read 'Eric F. Pastor', written over the company name.

Eric F. Pastor, P.E.
Principal Engineer

Enclosures

cc: Ms. Luda Voskov – TCEQ (2 copies)
Mr. Doug McReynolds – EA Engineering, Science and Technology
Mr. Ron Brinkley – US Fish and Wildlife Service
Mr. Don Pitts – Texas Parks and Wildlife Department
Mr. Andy Tirpak – Texas Parks and Wildlife Department
Mr. Tommy Mobley – Texas General Land Office
Mr. Larry Champagne - Texas Commission on Environmental Quality

The RI conclusions are summarized by area/media below. The extent of COIs in these media were determined through comparisons to extent evaluation comparison values identified in the RI/FS Work Plan.

- Intracoastal Waterway Sediments – Certain polynuclear aromatic hydrocarbons (PAHs) (including some carcinogenic PAHs) and 4,4'-dichlorodiphenyltrichloroethane (DDT) were the only COIs detected in Site Intracoastal Waterway sediment samples at concentrations exceeding extent evaluation comparison values. These exceedances were limited to sample locations within or on the perimeter of the barge slip areas. Based on these data, the lateral extent of contamination in Intracoastal Waterway sediments, as defined by COI concentrations above extent evaluation comparison values, was identified as limited to small localized areas within the two Site barge slips. A vertical extent evaluation does not apply to this medium.
- Intracoastal Waterway Surface Water – No COIs were detected at concentrations above their respective extent evaluation comparison values in Site Intracoastal Waterway surface water samples.
- South Area Soils – COIs detected in South Area soils at concentrations exceeding extent evaluation comparison values included certain metals, polychlorinated biphenyls (PCBs) and PAHs (including some carcinogenic PAHs). The lateral extent of contamination in South Area soils, as defined by COI concentrations above their respective extent evaluation comparison values, was identified as limited to the South Area and potentially a small localized area immediately west and adjacent to the Site on off-site Lot 20. The vertical extent of COI concentrations above comparison values in South Area soils was defined by samples from depths less than 4 feet, except for a sample collected from a depth of 4.5 feet during a removal action performed at a tank farm in the South Area.
- North Area Soils – The only COIs detected in at least one North Area soil sample at concentrations exceeding their respective extent evaluation comparison values were arsenic, iron, lead, 1,2,3-trichloropropane (1,2,3-TCP), trichloroethene (TCE), benzo(a)pyrene (BaP), dibenz(a,h)anthracene, and PCBs. The lateral extent of contamination in North Area soils, as defined by COI concentrations above their respective extent evaluation comparison values, was limited to small localized areas

ecological PSVs were not considered for the vertical extent evaluation because Site soil conditions suggest that there is limited potential for significant biological activity below a depth of two feet and representative Site ecological receptors typically do not burrow below this depth. Based on these considerations, human health PSVs (as reflected in Table 17) were used (with background) for the vertical extent of soil contamination evaluation.

Table 18 lists the detected soil concentrations in the Phase 1 samples that exceed the Table 17 comparison values. Based on these data, deeper soil samples were collected from the 4 to 5 foot depth interval at 15 locations and analyzed as listed in Table 19. No comparison value exceedances were detected, thus the vertical extent of COIs in South Area soils is limited to depths less than 4 feet, except for a sample collected from a depth of 4.5 feet during the TCRA.

4.4.2 Residential Surface Soil Investigation

As described in Section 2.4.2, this investigation program included the collection of surface soil samples for chemical analysis from the 0 to 1 inch depth interval at 27 specified locations on off-site Lots 19 and 20 (see Figure 10 for sample locations). The analytical suite for these samples was determined through an evaluation of data for 0 to 1 inch and 0 to 0.5 foot depth interval samples from on-site Lots 21, 22 and 23 as detailed in the Work Plan (Site lot designations are shown on Figure 2). Based on this evaluation, which was detailed in GRG's August 20, 2007 letter to EPA (approved with modification on September 6, 2007 and resubmitted on September 21, 2007), the 27 surface soil samples collected from off-site Lots 19 and 20 were analyzed for lead.

Lead concentrations in the Lot 19/20 surface soil samples are listed in Table 20 and plotted on Figure 45. Consistent with the data evaluation approach described in GRG's August 20, 2007 letter to EPA, these data were compared to the lowest of the lead PSVs in Table 17 of the Work Plan that are associated with direct contact exposure pathways (i.e., those pathways involving potential soil contact by residential receptors). The lead PSVs for these pathways are the EPA Region 6 human health media-specific screening level for soil of 400 mg/kg, and the TCEQ $^{Tot}Soil_{Comb}$ Protective Concentration Level (PCL) of 500 mg/kg, which includes inhalation, ingestion and dermal pathways. Thus, a lead concentration of 400 mg/kg was used as the comparison value for assessing whether further surface soil investigation beyond Lots 19 and 20 was necessary.

Geochemical Indicators

As noted above, geochemical conditions conducive to degradation processes can provide a secondary line of evidence for biodegradation of COIs in Site groundwater. Several key indicators of conditions favorable for anaerobic biodegradation were evaluated as part of groundwater sampling activities. Measurements/concentrations of these parameters in North Area Zone A monitoring wells during the November 2007 and June 2008 sampling events are summarized in Table 33. Discussions of each of the parameters and their significance as indicators of biodegradation are provided below:

Dissolved Oxygen – As noted above, CAH degradation through reductive dechlorination is an anaerobic process. Anaerobic bacteria generally cannot function at DO concentrations greater than 0.5 mg/L; DO concentrations below that threshold are considered tolerable for anaerobic degradation (EPA, 1998). As shown on Table 33, more than 75% of the DO measurements in North Area Zone A monitoring wells were below 0.5 mg/L, with the few exceedances only slightly above this threshold. Thus, the DO data suggest favorable conditions for anaerobic biodegradation.

Oxidation-Reduction Potential – ORP is an indicator of the relative tendency of a solution to accept or transfer electrons. ORP measurements (using a silver/silver chloride electrode) less than 50 millivolts (mV) indicate that reductive dechlorination is possible and ORP measurements less than -100 mV indicate such a degradation pathway is likely (EPA, 1998). ORP measurements listed in Table 33 for North Area Zone A monitoring wells were all less than 50 mV with approximately 25 % of those measurements less than -100 mV. Thus, the ORP data suggest favorable conditions for anaerobic biodegradation.

Temperature and pH – Temperature and pH conditions can affect the presence and activity of microbial populations. Temperatures greater than 20°C and pH values between 5 and 9 are considered optimal for anaerobic biodegradation (EPA, 1998). All measurements of these parameters in North Area Zone A monitoring wells (Table 33) fall within these ranges.

Fe (II) – During anaerobic biodegradation of organic carbon, ferric iron ((Fe(III))) can serve as an electron acceptor and be reduced to Fe(II). Thus the accumulation of Fe(II) can be an indicator of favorable anaerobic conditions. Ferrous iron concentrations greater than 1 mg/L are considered indicative that reductive dechlorination is possible (EPA, 1998). As shown on Table 33, all Fe(II) measurements in North Area Zone A monitoring wells were considerably higher than this 1 mg/L benchmark.

Nitrate – Nitrate can be used as an electron acceptor for anaerobic biodegradation of organic carbon via denitrification. Nitrate concentrations less than 1 mg/L are considered necessary for reductive dechlorination to occur (EPA, 1998), as otherwise denitrification will compete with reductive dechlorination for electrons. As shown on Table 33, nitrate concentrations in all but one North Area Zone A monitoring well sample were considerably lower than 1 mg/L, indicating acceptable conditions for reductive dechlorination.

at concentrations above comparison values in South Area soils was defined by samples from depths less than 4 feet, except for a sample collected from a depth of 4.5 feet during a removal action performed at a tank farm in the South Area.

- North Area Soils – The only COIs detected in at least one North Area soil sample at concentrations exceeding their respective extent evaluation comparison values were arsenic, iron, lead, 1,2,3-TCP, TCE, BaP, dibenz(a,h)anthracene, and PCBs. The lateral extent of contamination in North Area soils, as defined by COI concentrations above their respective extent evaluation comparison values, was identified as limited to small localized areas within this part of the Site where upland soils are present (i.e., within the area surrounded by wetlands). The vertical extent of COIs at concentrations above extent evaluation comparison values in North Area soils extends to the saturated zone at some locations. Within the extent of North Area soil contamination, a small localized area of buried debris (rope, wood fragments, plastic, packing material, etc.) was encountered at depths of three feet bgs or more south of the former surface impoundments.
- Wetland Sediments – COIs detected in at least one wetland sediment sample at concentrations exceeding their respective extent evaluation comparison values included certain metals, pesticides and PAHs (including carcinogenic PAHs). The lateral extent of contamination in wetland sediments, as defined by COIs concentrations above extent evaluation comparison values, was limited to specific areas within the Site boundaries and small localized areas immediately north and east of the Site. The vertical extent of COIs at concentrations above extent evaluation comparison values in wetland sediments was limited to the upper one foot of unsaturated sediment.
- Wetland Surface Water – Acrolein, copper, mercury, and manganese were the only COIs detected in at least one wetland surface water sample at concentrations exceeding their respective extent evaluation comparison values. The lateral extent of contamination in wetland surface water, as defined by COI concentrations above extent evaluation comparison values, was identified as limited to localized areas within and immediately north of the Site. A vertical extent evaluation does not apply to this medium.
- Ponds Sediment – Zinc and 4,4'-DDT were the only COIs detected in at least one pond sediment sample at concentrations exceeding their respective extent evaluation